

## REMARKS

### **I. Status of Claims**

Claims 1, 4-7, and 10-11 are pending in the application. Claims 1 and 7 are independent. Claims 1, 4, 7, and 10 are amended. Claims 2-3 and 8-9 are canceled without prejudice to and/or disclaimer of the subject matter therein.

Claims 1, 5, and 7 stand rejected under 35 USC 102(b) as allegedly being anticipated by Hasegawa (USP 5,460,138) (hereinafter “Hasegawa”).

Claims 6 and 11 stand rejected under 35 USC 103(a) as allegedly being unpatentable over Hasegawa in view of Kani et al (USP 5,114,769) (“Kani”).

Claims 4 and 10 stand rejected under 35 USC 103(a) as allegedly being unpatentable over Hasegawa in view of Kristiansson (USP 5,323,743) (“Kristiansson”).

The Applicant respectfully requests reconsideration of these rejections in view of the following remarks and the foregoing amendments.

### **II. Pending Claims**

Claims 1 and 7, the only independent claims, stand rejected under 35 USC 102(b) as allegedly being unpatentable over Hasegawa.

The Applicant respectfully submits that claims 1 and 7 are patentable over Hasegawa at least because they recite, “a reverse rotation presumption module that presumes reverse rotation of the internal combustion engine based on the measured revolution speed of the internal combustion engine, wherein the reverse rotation is the reverse rotation of the internal combustion engine due to the incomplete of a compression cycle immediately before the stop of the internal combustion engine during the internal combustion engine is auto stopped with fulfillment of the auto stop condition....” (emphasis added)

Certain embodiments of the present invention regard an idling stop control that attains an auto start and auto stop for an engine. The Applicant respectfully submits that, *at a time point t1, pre-set stop conditions are met to cut off a fuel supply to the engine.* Also, the Applicant respectfully submits *that preset starting conditions may be met at a time point t2 when the engine still continues rotating in a normal direction by the inertial force.* In this state, the idling stop

control starts cranking the engine. The preset starting conditions may be met at a time point  $t_4$  when a piston does not complete a compression cycle immediately before a stop of the engine but is pressed back by the compressed air to rotate the engine in a reverse direction. In this state, the idling stop control waits until cancellation of the reverse rotation of the engine and then starts cranking the engine. The arrangements of the inventions of claims 1 and 7 may facilitate a quick start of the engine, while effectively preventing an excess stress from acting on a gear mechanism, which connects a starter motor to the engine. *See Abstract of the Applicant's specification.*

In contrast to the present application, Hasegawa neither discloses nor suggests a reverse rotation presumption module that presumes reverse rotation of the internal combustion engine based on the measured revolution speed of the internal combustion engine, wherein the reverse rotation is the reverse rotation of the internal combustion engine due to the incompleteness of a compression cycle immediately before stopping of the internal combustion engine when the internal combustion engine is auto stopped with fulfillment of the auto stop condition. Rather, Hasegawa discloses a starting motor system, which includes a starting motor, and a barring system for rotating an engine crankshaft that is different than at least the inventions of claims 1 and 7 of the present invention. Further, the barring system is operated to observe and advance/reverse the flywheel and crankshaft for maintenance or repair procedures, but does not presume reverse rotation (or any rotation).

Further, the cranking control module of Hasegawa does not control the cranking module to crank the internal combustion engine after the reverse rotation of the internal combustion engine becomes not to be presumed by the reverse rotation presumption module when the reverse rotation of the internal combustion engine is presumed by the reverse rotation presumption module. Rather, the cranking module of Hasegawa cited in the Office Action prevents actuation of the starter motor 22, but not the internal combustion engine, since the crankshaft and flywheel can still be rotated. Otherwise, the barring system would not be able to perform its intended function of rotating these components during maintenance and repair.

Lacking any teaching and/or suggestion of Applicant's reverse rotation presumption and cranking control modules, Hasegawa does not anticipate Applicant's claims.

Further, the Applicant respectfully submits that Kani and Kristiansson the other cited references do not identify a reason for modifying Hasegawa in the manner as claimed by the

Applicant. The Applicant respectfully submits that, as discussed in *KSR Int'l Co. v. Teleflex, et al.*, No. 04-1350, (U.S. Apr. 30, 2007), it remains necessary to identify the reason why a person of ordinary skill in the art would have been prompted to combine alleged prior art elements in the manner as claimed by the Applicant.

The Applicant respectfully submits that for at least these reasons, claims 1 and 7, as well as their dependent claims, are patentable over the cited references.

### **III. Conclusion**

In light of the above discussion, the Applicant respectfully submits that the present application is in all aspects in allowable condition, and earnestly solicits favorable reconsideration and early issuance of a Notice of Allowance.

The Examiner is invited to contact the undersigned at (202) 220-4420 to discuss any matter concerning this application. The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

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